

Maireana obrienii (Chenopodiaceae), a new species from eastern Australia

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Introduction

Botanical surveys in northern Victoria and southern New South Wales have detected an entity with affinities to *Maireana decalvans* (Gand.) Paul G. Wilson but with some significantly divergent traits. Comparison of a wide range of herbarium material of *M. decalvans* with the 'aberrant entity' and field visits to where the two entities are sympatric suggest recognition of a new species is warranted. The most recent treatments of *Maireana* (e.g. Wilson 1975, 1984) do not describe the features of the new species, suggesting it has been hitherto overlooked in herbarium collections and the field.

Taxonomy

Maireana obrienii N.G. Walsh, *sp. nov.*

a M. decalvanti perianthio fructu latiore ramulis glabris differt.

Type: VICTORIA. Pine Grove near Mitiamo, immediately north of Pine Grove Recreation Reserve (Rifle Range), 28.iv.2012, N.G. Walsh 7532, E. O'Brien & J.P. Walsh (holotype MEL 2357436; isotypes AD, CANB, NSW).

Perennial *shrub* with stout fusiform taproot to at least 3 cm diam and 50 cm long (probably more). *Branches* more or less erect, to 80 cm high. *Stems* striate, reddish, glabrous except for *conspicuous white tufts* of hairs in axils. *Leaves of mature plants* narrowly ovoid to clavate, 3–6(–10) mm long, 1.5–2 mm wide (when dry), l/w ratio generally <5 (to c. 3 mm wide and l/w ratio 2–3 when fresh), glaucous. *Leaves of juvenile plants* typically longer, to 22 mm. *Fruiting perianth* glabrous, or the tepals sparsely ciliate at apices, wing 10–12 mm diam, quite flat, margin (apart from radicular slit) entire to shallowly and irregularly sinuate, with no suggestion of discrete lobing, nearly white to pale green when young and with conspicuous rosy pink marginal rim, finally grey-brown with numerous fine anastomosing blackish veins before falling from the plant. Thickened

Abstract

Maireana obrienii N.G. Walsh, a new species with affinities to *M. decalvans* (Gand.) Paul G. Wilson, recorded from the Brigalow Belt, South-west Slopes and Riverina regions of Queensland, New South Wales and Victoria, is described and illustrated. Its distribution and ecology are discussed.

Key words: taxonomy, distribution, Chenopodiaceae.

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central part of fruit (fruiting perianth tube) 3.5–4.5 mm diam. *Utricle* (2.5–)3–3.5 mm diam. Flowers and fruits Dec.–May, mostly in autumn. (Fig. 1)

Specimens examined: QUEENSLAND. BRIGALOW BELT SOUTH 51 km W of Miles, *K.R. McDonald 260* (BRI); 14 miles [24 km] W of Tara, *T.J. McDonald 76* (BRI, MEL); Between Yelarbon and Goondiwindi, *L.S. Smith 14211* (BRI); NEW SOUTH WALES. RIVERINA, Griffith, *G.R. Sainty 143* (NSW); 1.3 km WSW of Jerilderie, 22.v.2012, *E. O'Brien s.n.* (CANB, MEL); Cobb Hwy, 15 km S of Mathoura, 13.v.2012, *E. O'Brien s.n.* (CANB, MEL, NSW); SOUTH WESTERN SLOPES, Forbes, *B. Whitehead 2* (PERTH). VICTORIA. RIVERINA, Whitfield Rd, Terrick East, 6.vi.2012, *E. O'Brien s.n.* (BRI, MEL, NSW); Echuca Railway Reserve, 4.8 km SSE from town centre, 13.v.2012, *E. O'Brien s.n.* (MEL); O'Tooles-Leahys Rd, Terrick Terrick, 6.vi.2012, *E. O'Brien s.n.* (AD, MEL, NSW); Jasper Rd, c. 500 m W of Bendigo-Tennyson Rd, *W.A. Gebert 236, E.A. James & R. Jordan* (CANB, MEL, PAL, S); Bayliss Rd, 100 m S of Olds Rd, SE of Prairie, *W.A. Gebert 230, E.A. James & R. Jordan* (MEL, PAL, S); Bayliss Rd, Prairie, 13.v.2012, *E. O'Brien s.n.* (MEL, PERTH); VICTORIAN MIDLANDS, Inglewood Conservation

Reserve, *W.A. Gebert 244, E.A. James & R. Jordan* (MEL, PAL, S); Loddon West Rd, 5.8 km SSW of Serpentine, 18.v.2012, *E. O'Brien s.n.* (AD, BRI, MEL).

Distribution and habitat: *Maireana obrienii*, as far as is known, is largely confined to the Riverina region (*sensu* IBRA 2012) occurring in an arc from near Jerilderie in south-central New South Wales south and west to near Serpentine in Victoria. The mean annual rainfall through this area is 375–425 mm. An outlying occurrence in the South Western Slopes region (*sensu* IBRA 2012) of New South Wales is known. Three collections from the southern Brigalow Belt (*sensu* IBRA 2012) in Queensland are tentatively referred to *M. obrienii* (see below).

In the Riverina, the species is of restricted occurrence in the northern part of its range, where it occurs mainly in the Moama–Mathoura area, with some isolated occurrences in grasslands near Jerilderie and Conargo. It is common in a restricted area in Victoria, especially on the grassland plains west and east of Echuca, including



Figure 1. *Maireana obrienii* at type locality, photographed by the author, 28.iv.2012

Table 1. Comparison of key morphological features of *Maireana obrienii* and *M. decalvans*

	<i>M. obrienii</i>	<i>M. decalvans</i>
Habit	Erect, to c. 80 cm high	Usually sprawling, to c. 50 cm high
Stem (other than axillary hair tufts)	Glabrous	Pubescent with fine pale brown hairs, becoming glabrous with age
Leaves	Clavate to ellipsoid, 1.5–2 mm wide, l/w ratio <5 when dry (typically to c. 3 mm wide and l/w ratio 2–3 when fresh)	Cylindric to narrow-ellipsoid, c. 1 mm wide, l/w ratio > 5 when dry (typically to c. 1.5 mm wide and l/w ratio >4 when fresh)
Fruiting perianth wing	10–13 mm diam, unlobed, flat to very weakly undulate, white to pale green with a distinct rosy pink margin before darkening	6–8(–9) mm diam, often shallowly c. 5-lobed and pleated, straw coloured, with or without indistinct orange-reddish rim before darkening
Fruiting perianth tube	3.5–4.5 mm diam	2–3 mm diam
Mature utricle	(2.5–)3–3.5 mm diam	1.5–2 mm diam

Terrick Terrick National Park and other reserved areas. Occurrences north-east of this range near Lockhart (New South Wales) and near Inglewood (Victoria) in the south-west are suspected to be unnatural as they are in disturbed roadside vegetation in atypical habitat (woodlands of *Eucalyptus microcarpa* (Maiden) Maiden and *Callitris columellaris* F.Muell. and eucalypt mallee respectively). The isolated specimens from Forbes and southern Queensland suggest a more extensive range, but it is not known if the apparent gap in distribution is real or an artifact of collection effort.

As far as is known, the typical habitat for *M. obrienii* is grassland or open woodland, occurring on hard-setting red-brown clay loam or on self-mulching clays where these occur in close proximity to the more typical clay loam. Species commonly associated with *M. obrienii* include *Atriplex semibaccata* R.Br., *Austrostipa nodosa* (S.T.Blake) S.W.L.Jacobs & Everett, *Enteropogon acicularis* (Lindl.) Lazarides, *Goodenia* spp., *Leiocarpa* spp., *Maireana decalvans* (Gand.) Paul G.Wilson, *M. pentagona* (R.H.Anderson) Paul G.Wilson, *Rytidosperma caespitosum* (Gaudich.) Connor & Edgar, *R. setaceum* (R.Br.) Connor & Edgar, *Sida corrugata* Lindl. and *Sporobolus caroli* Mez.

Collectors' notes accompanying the three specimens from Queensland suggest a similar fertile clay substrate to sites of the Riverina, at least sometimes with gilgais. Mean annual rainfall for the region is around 490 mm. In this region, *M. obrienii* occurs in *Acacia harpophylla* F.Muell. ex Benth. and *Eucalyptus populnea* F.Muell. woodlands.

Biology: Plants of *Maireana obrienii* usually die back to the base during winter and early spring, with

new stems forming as warmer weather arrives in late spring and early summer. Rapid growth, flowering and fruiting typically occurs in autumn. Abundant fruiting and recruitment occurs under favourable conditions, especially following extended drought, which appears to increase both seed production and recruitment success. Germination typically occurs on the soil surface in autumn, usually within a few days of sufficient rainfall. Buried seed does not seem to germinate. The species does not form a lasting seedbank with seed retaining viability for only a few months under field conditions, and less than 12 months in storage at ambient conditions (E. O'Brien pers. obs.).

Relative abundance of *M. obrienii* can vary greatly depending on seasonal conditions. Density can increase rapidly during a series of dry seasons, then decrease dramatically following high rainfall years.

The species has been cultivated as a pasture species on farmland at Pine Grove for 10 years, where it has proven to be a useful fodder species, especially during drought or a late autumn break (E. O'Brien pers. comm.).

Notes: The new species differs from *Maireana decalvans*, with which it is often associated in the field, in being (at least in the Riverina) generally a taller, more erect plant, with stems that are quite glabrous apart from the axillary hair tufts. The leaves are generally broader, often clavate, and the fruiting perianth tube and wings are larger as are the mature utricles. The wings of the fruit are typically more colorful than those of *M. decalvans* and show no sign of lobing or pleating – states that are often found in *M. decalvans*. Table 1 summarises the differences between the two species.

Specimens of *M. decalvans* may be as tall as, or taller than *M. obrienii* in areas outside the Riverina. A specimen from near Doon in Victoria, is claimed to have been from a plant in excess of 1.8 m high (*W. Clarkson s.n.*, MEL 722215). Nonetheless, through the Riverina, the form of *M. decalvans* is typically a squatter plant than *M. obrienii* and readily distinguished in the field. *Maireana decalvans* is widespread from central Queensland to southern Victoria and South Australia and locally common. It appears to be tolerant of a wider range of temperature, rainfall and soil types.

The three Queensland specimens cited above differ slightly from the southern collections. While they have the characteristic glabrous stem internodes, the fruits (wings, perianth tube and utricle) are the smallest seen for the species and approach (but do not quite reach) the dimensions of these structures in *M. decalvans*. Typical *M. decalvans* specimens are common through the area encompassed by the Queensland *M. obrienii* specimens. They are readily distinguished in the herbarium by the pubescent young stem internodes. Nonetheless, further collections of the species in the Brigalow Belt would be useful to clarify the boundaries between the two species in this region.

Only one collection (*McDonald 76*) of *M. obrienii* was found amongst the 107 sheets of *M. decalvans* (the most likely species to be confused with it) at MEL prior to the 2012 collection from which the type was designated. A few specimens have been determined from collections at BRI, NSW and PERTH. It is possible that further specimens exist in other herbaria. The species has undoubtedly been depleted through much of its range through land clearance, grazing and cultivation (E. O'Brien pers. comm.).

Maireana obrienii is vulnerable to grazing during the main fruiting period, although grazing or pruning prior to the main growth period may promote new shoot development. It is also susceptible to damage by chemical spray drift, especially where roadside remnants occur adjacent to cropping land (E. O'Brien pers. comm.).

The epithet honours Mr Eris O'Brien, farmer and naturalist, whose extensive knowledge of the vegetation of the Riverina has resulted in many new discoveries and contributed considerably to the understanding and protection of significant remnants in this region.

Eris first brought this new species to my attention and kindly contributed the distributional and ecological information provided above.

References

- IBRA (2012). Interim Biogeographic Regionalisation for Australia (version 6.1, accessed 20.vi.2012). <<http://www.environment.gov.au/parks/nrs/science/bioregion-framework/ibra/index.html>>
- Wilson, Paul G. (1975). A taxonomic revision of the genus *Maireana* (Chenopodiaceae). *Nuytsia* **2**, 2–83.
- Wilson, Paul G. (1984). '*Maireana*', in A.S. George (ed.), *Flora of Australia* **4**, 170–213. Australian Government Printing Service: Canberra.